

How Early Life Trauma and Neglect Impacts Brain Development and Attachment



The Philosophy.....

Bringing people together is what I call “ubuntu”. Which means...

“I am because we are”

Far too often people think of themselves as just individuals
whereas you are connected and

What you do affects the whole world....

When you do well, it spreads out; it is for the whole world.

Desmond Tutu

**HOW WONDERFUL IT IS THAT
WE NEED NOT WAIT A SINGLE
MOMENT BEFORE STARTING
TO CHANGE THE WORLD.**

— ANNE FRANK

Neurosequential Model

*It is important to understand
mechanisms underlying
current functioning.*

Your understanding determines your solution
- Stuart Ablon (CPS, 2010)

Neurosequential Model

The brain mediates our thoughts, feelings, actions and connections to others and the world.

Understanding core principles of neuroscience, including neuroplasticity and neurodevelopment, can help us better understand ourselves and others.

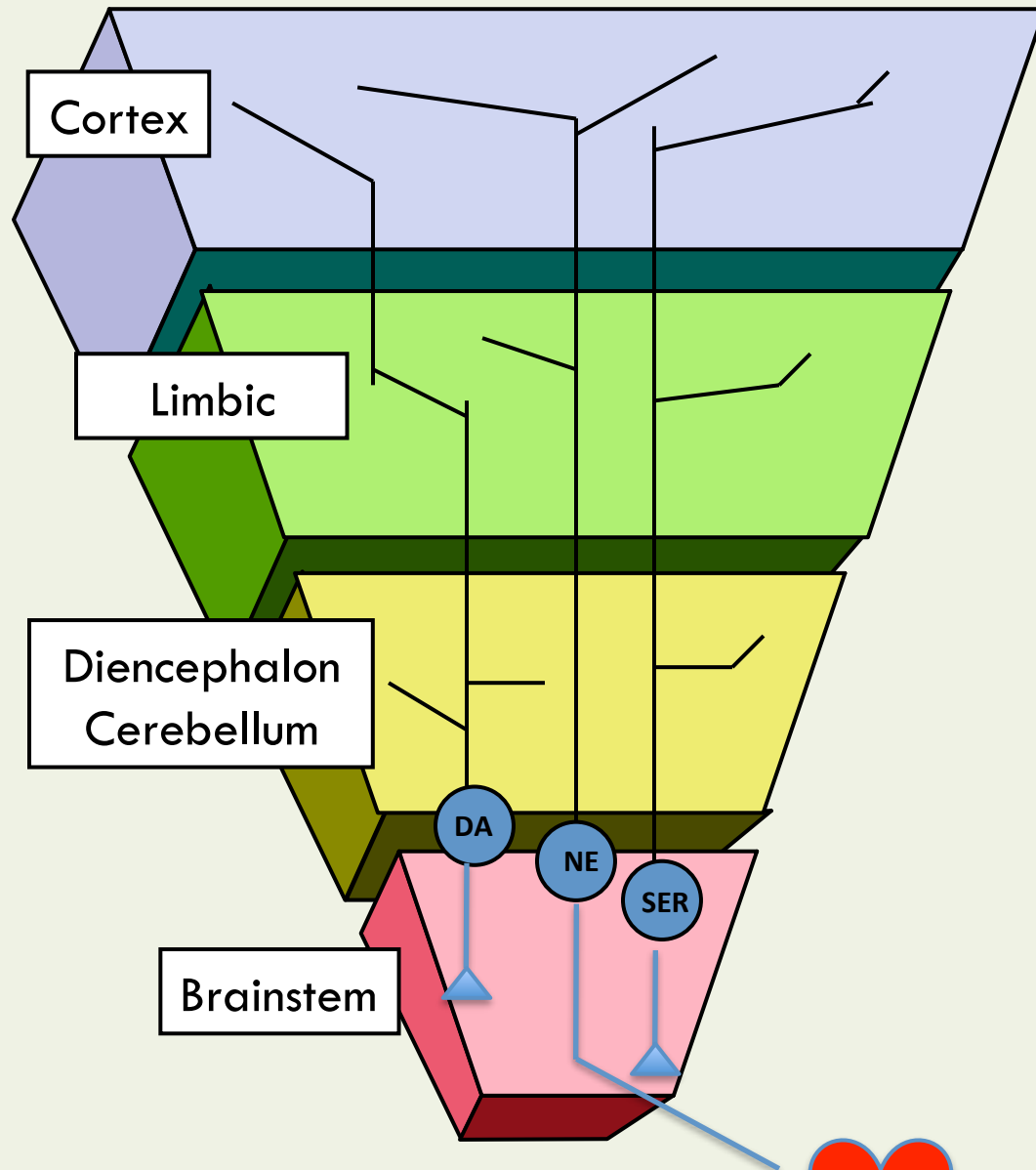
Sequential Neurodevelopment

- The brain is undeveloped at birth
- The brain organizes from the “bottom” up - brainstem to cortex and from the inside out
- Organization and functional capacity of neural systems is sequential
- Experiences do not have equal “valence” throughout development

Human beings are social creatures.

The neural systems which mediate social interaction, communication, empathy and the capacity to bond with others are all shaped by the nature, quantity and timing of early life relationships.

Efferent Distribution of Primary Regulatory Networks



Abstract & Reflective Cognition

Concrete Cognition

Affiliation

Attachment/Reward

Sexual Behavior

Emotional Reactivity

Motor Regulation

Arousal

Appetite/Satiety

Sleep

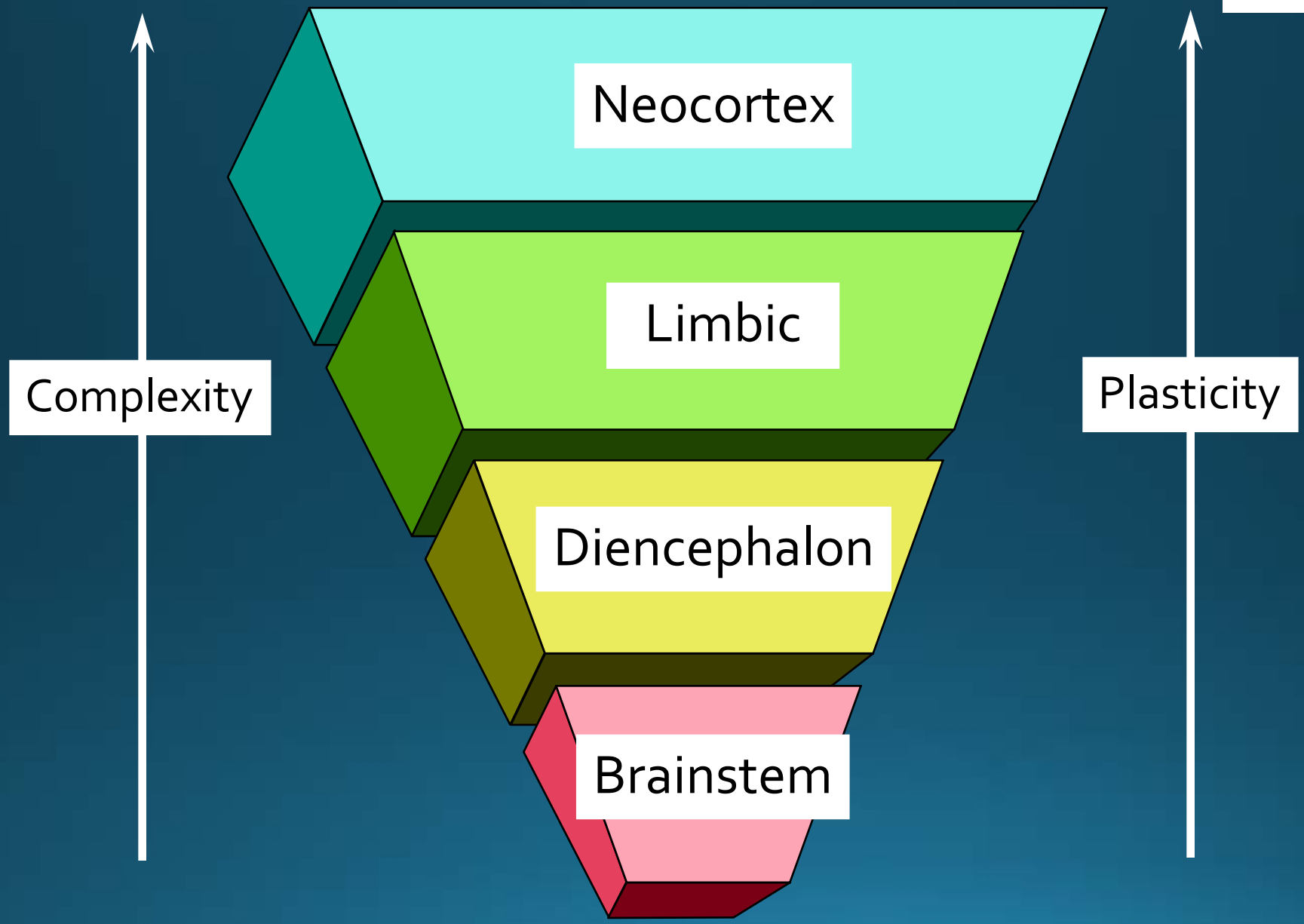
Blood Pressure

Heart Rate

Body Temperature



ANS - body

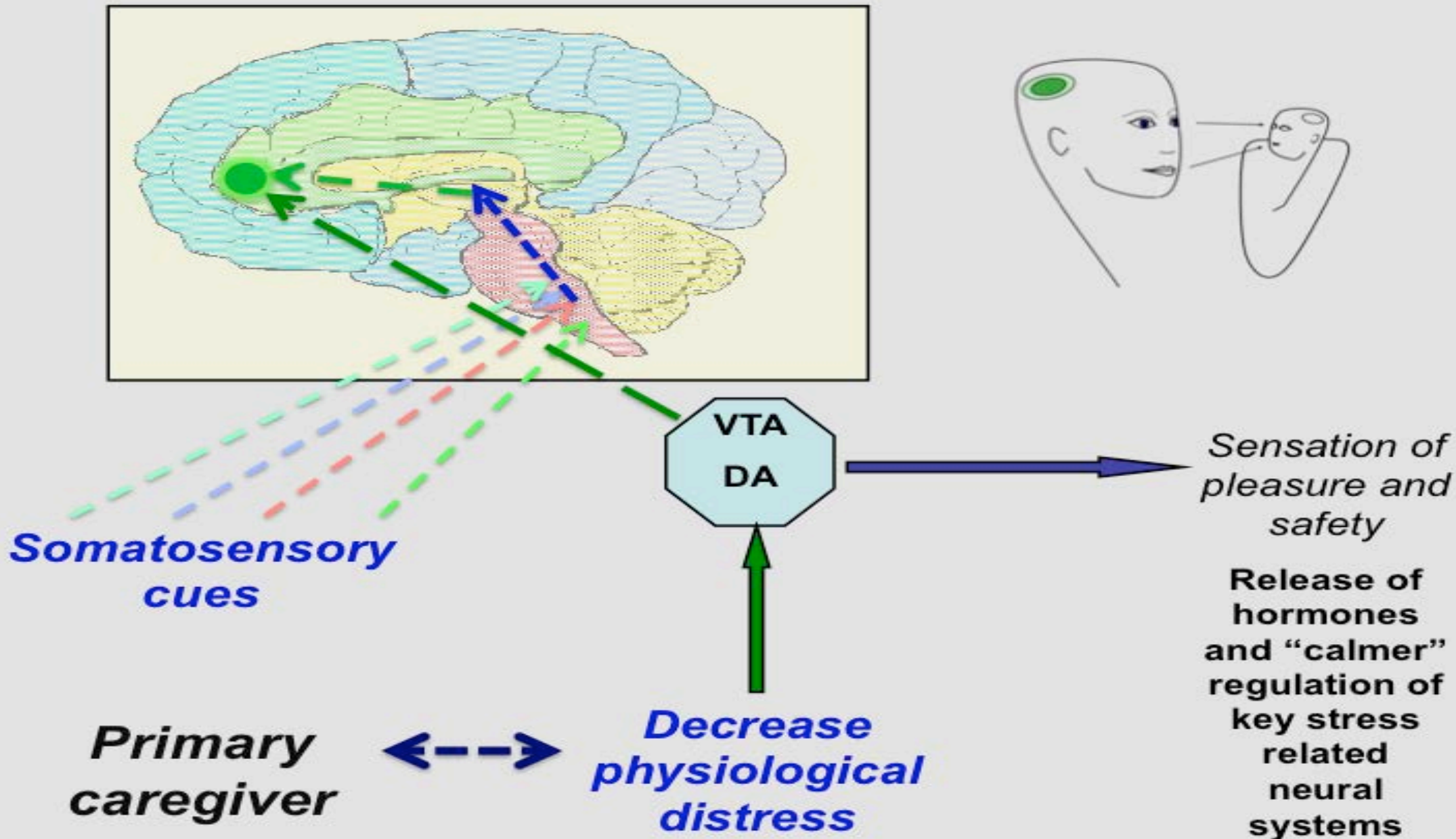


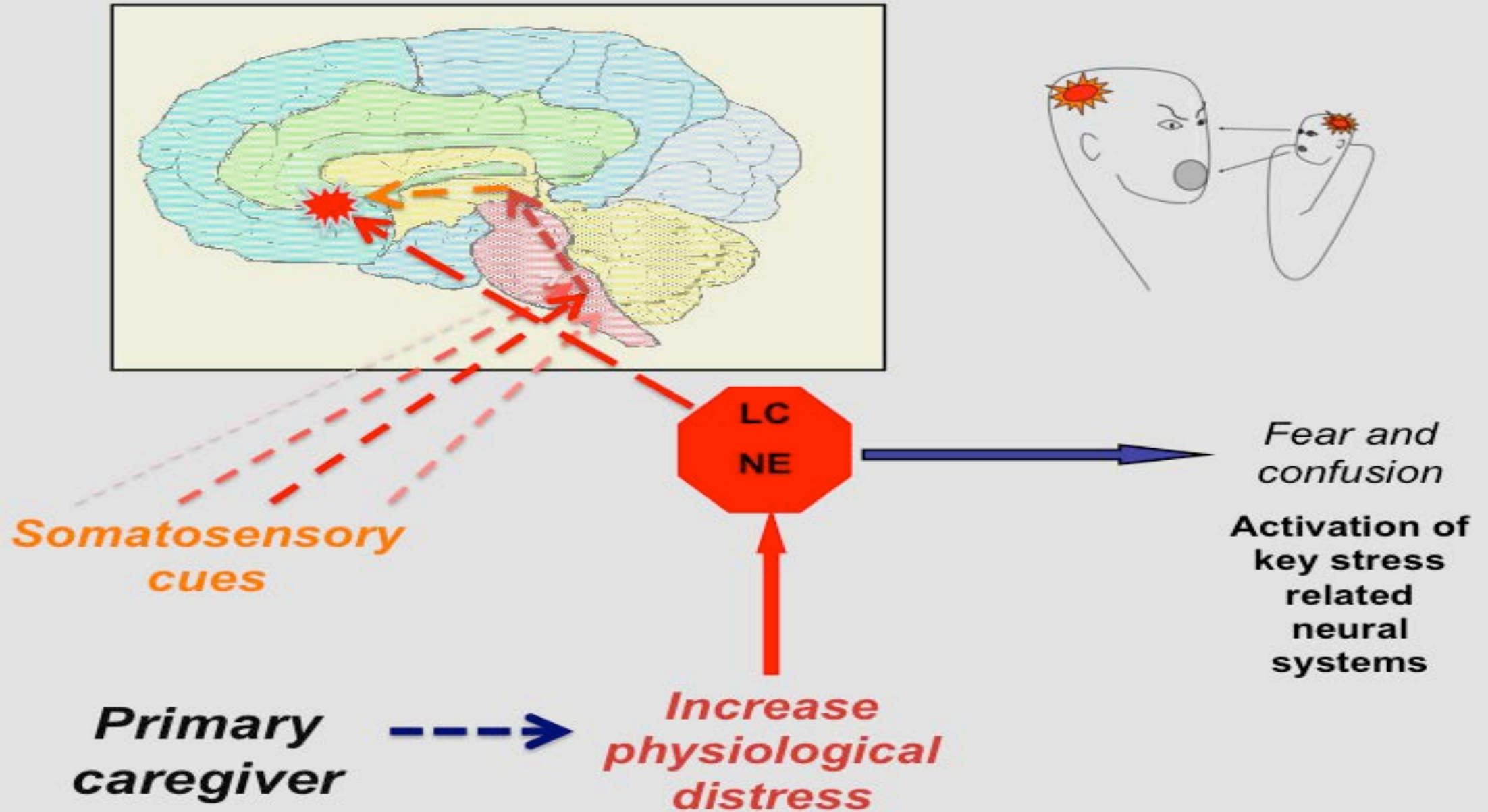
Changing the Brain

- The brain is always changing
- Plasticity is not uniform across all brain areas
- It takes less time, intensity and repetition to organize the developing neural systems than to re-organize the developed neural systems

I may be small
but I feel it all...







Oxytocin...the love hormone

- Oxytocin is a hormone secreted by the posterior lobe of the pituitary gland, a pea-sized structure at the base of the brain.
- It's sometimes known as the "cuddle hormone" or the "love hormone," because it is released when people snuggle up or bond socially.

Where it all starts?

- Maternal post-partum behavior is the mechanism upon which the cross generation transmission attachment bond is built.
- Oxytocin is a bio-feedback loop: more touch and attunement causes oxytocin release and vice versa.
- Maternal Behavior shapes infants oxytocin system=the ability to connect
- Maternal Behavior shapes the cortisol system=the ability to handle stress

Why early intervention is so important....

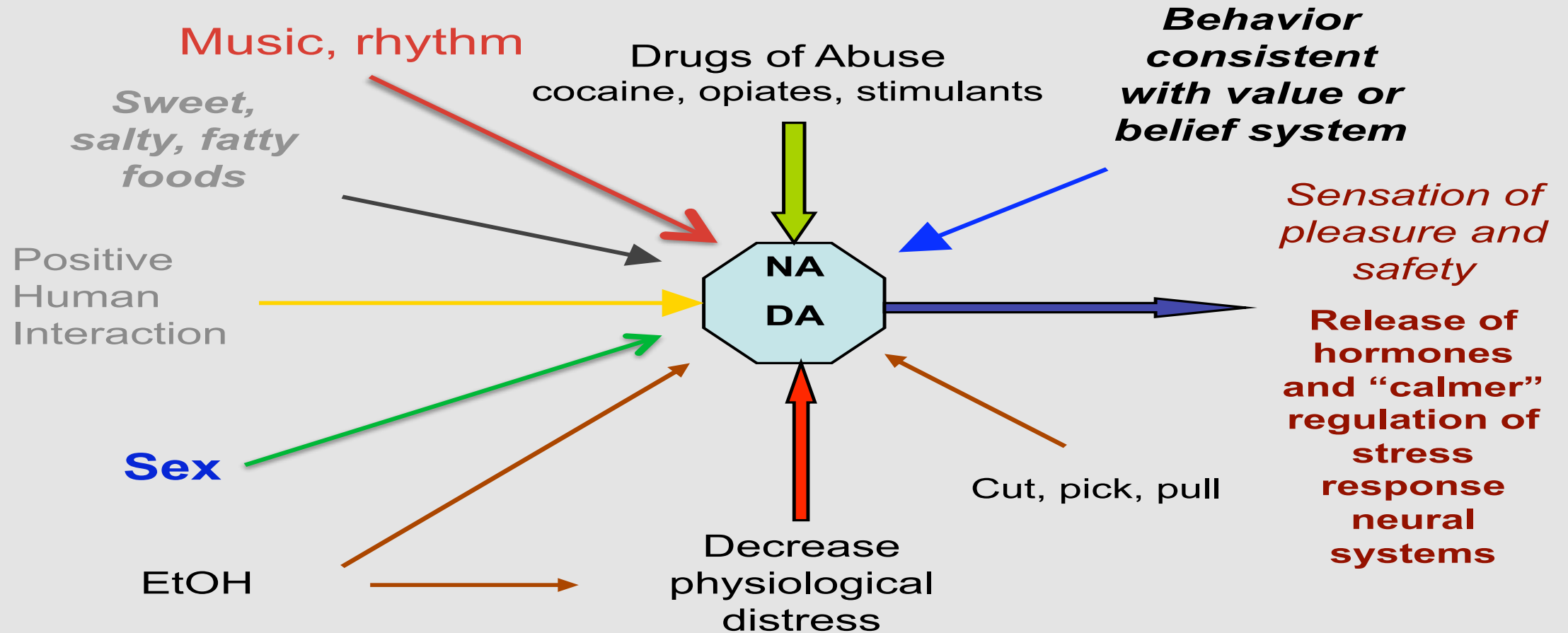
- Toxic stress damages brain architecture.
- Resilience is not an internal character strength, but is built through combined impact of genes and experiences.
- For many functions, the brain's capacity for change decreases over time, not all functions are impacted equally.

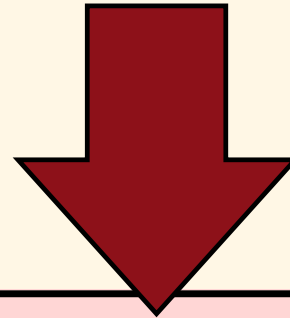
Why is early intervention so crucial...continued

- Neurons that fire together wire together!
- Development is not a blank slate
- Timing of insult will have different effects
- Babies are face experts, with-in minutes of birth, they seek a response from the mouth as a neurological preparation for language, and the eyes for a gaze that signals connection.
- Feeding is one of the first human caregiving interactions that begin a process of synaptic connections about the safety and protection that exists in the caregiving relationship.

Neurobiology of reward

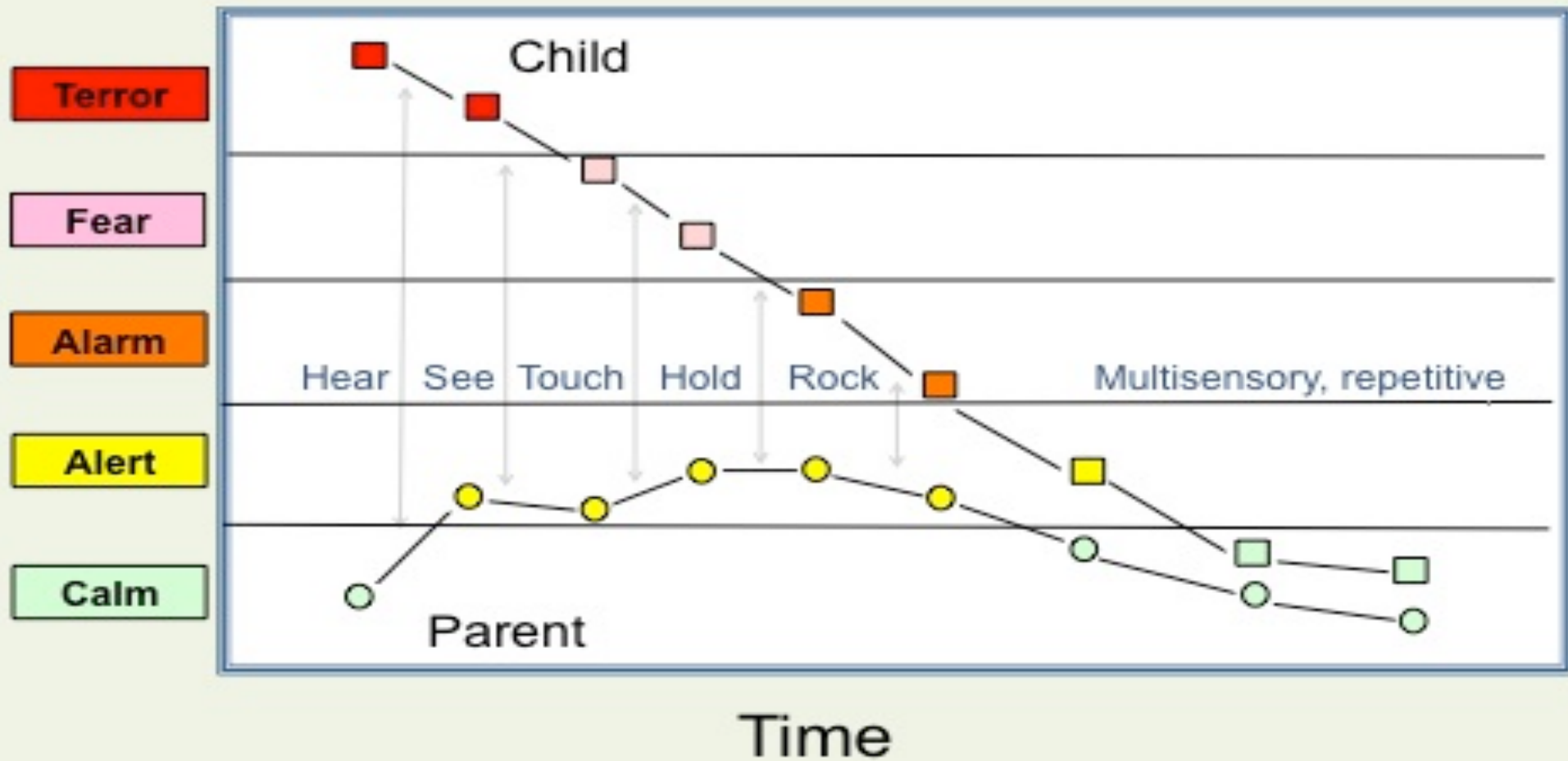
Stimulation of “Reward” Neural Systems in the Human Brain: *Multiple Mediators*





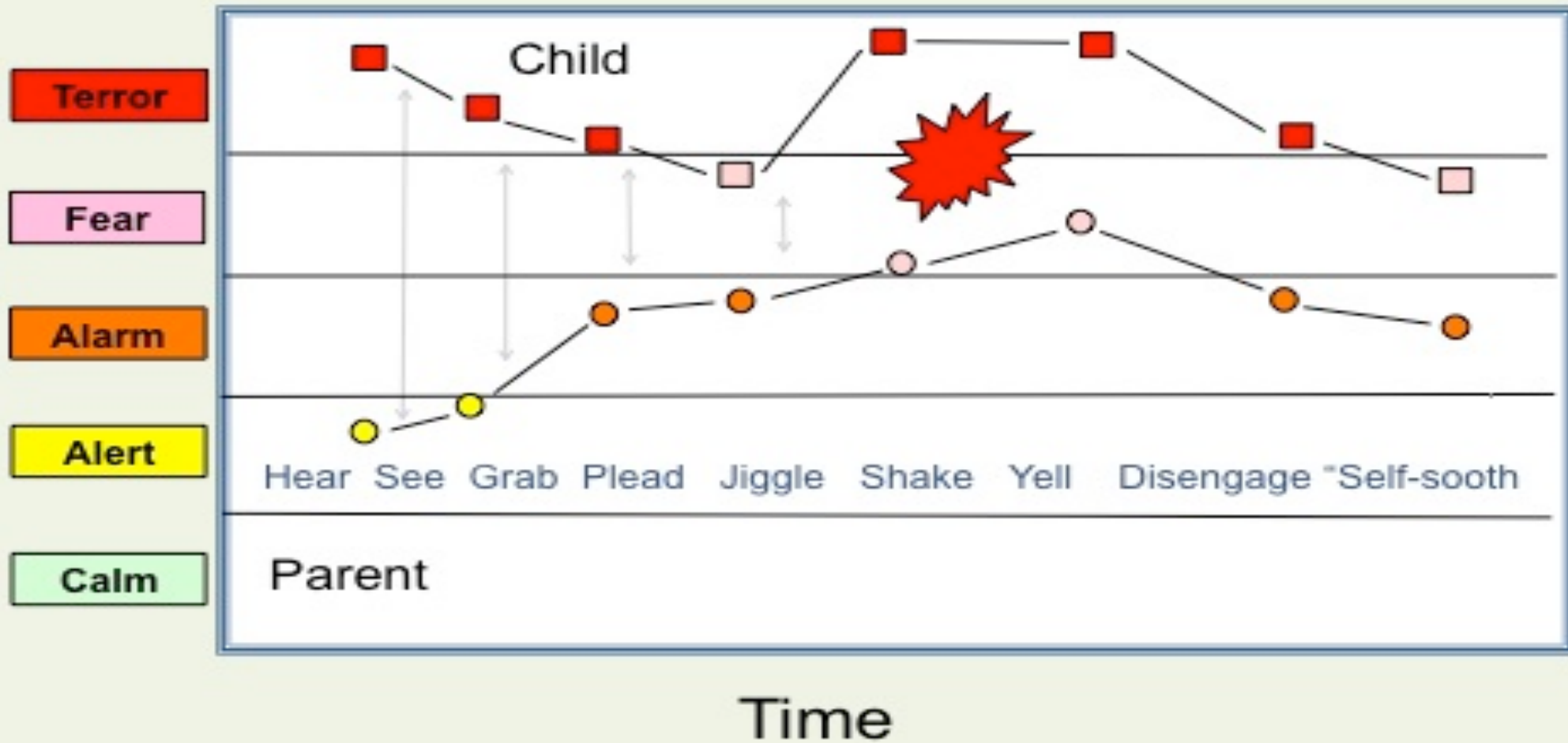
Sense of Time	Extended Future	Days Hours	Hours Minutes	Minutes Seconds	Loss of Sense of Time
Primary secondary Brain Areas	NEOCORTEX <i>Subcortex</i>	SUBCORTEX <i>Limbic</i>	LIMBIC <i>Midbrain</i>	MIDBRAIN <i>Brainstem</i>	BRAINSTEM <i>Autonomic</i>
Cognition	Abstract	Concrete	Emotional	Reactive	Reflexive
Mental State	CALM	ALERT	ALARM	FEAR	TERROR

Co-regulation: Distressed child and well-regulated parent



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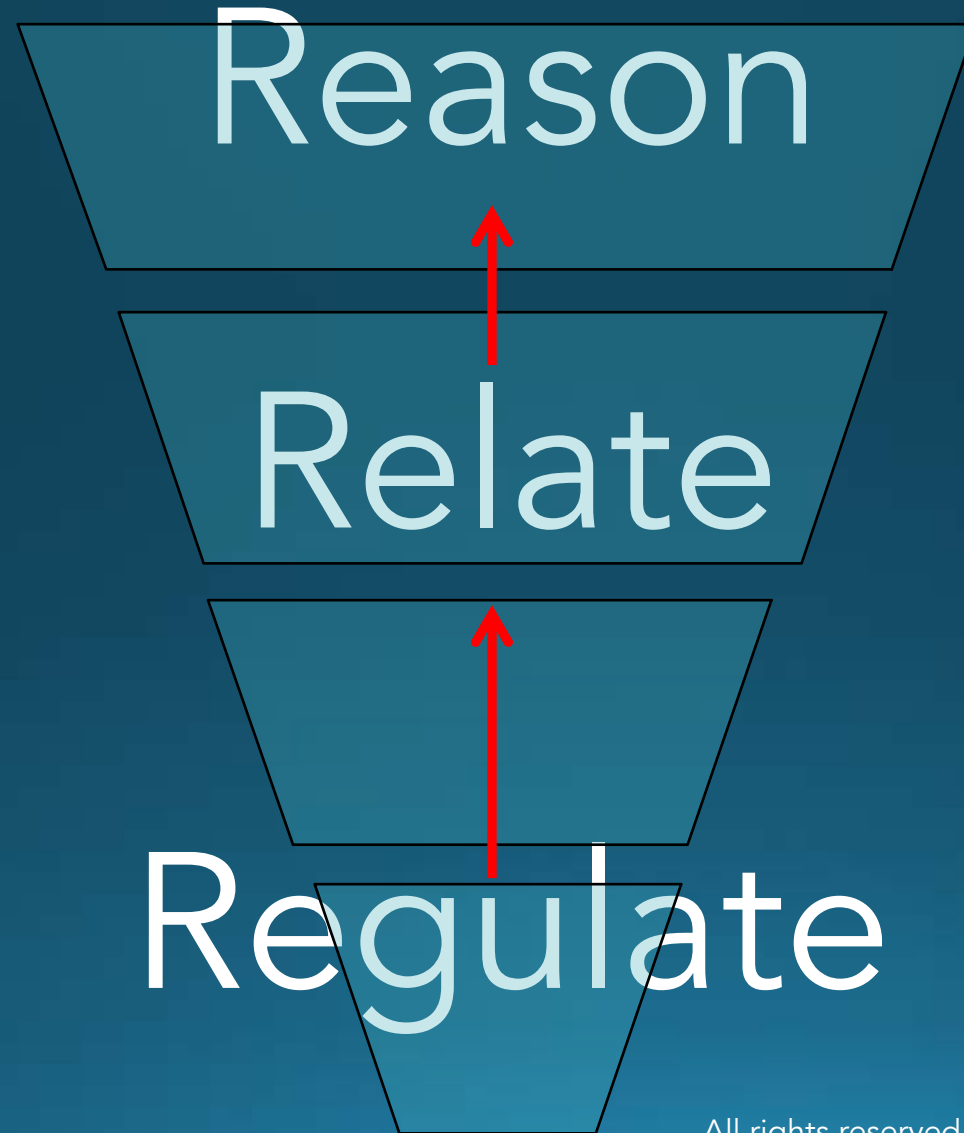
Co-dysregulation: Distressed child and anxious, reactive parent



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<i>Adaptive Response</i>	REST	VIGILANCE	FREEZE	FLIGHT	FIGHT
Predictable De-escalating Behaviors <i>(behaviors of the teacher or caregiver when a child is in various states of arousal)</i>	Presence Quiet Rocking	Quiet voice Eye contact Confidence Clear simple directives	Slow sure physical touch "Invited" touch Quiet melodic words Singing, humming music	Presence Quiet Confidence Disengage	Appropriate physical restraint Withdraw from class TIME!
Predictable Escalating Behaviors <i>(behaviors of the teacher or caregiver when a child is in various states of arousal)</i>	Talking Poking Noise Television	Frustration, anxiety Communicate from distance without eye contact Complex, compound directives Ultimatums	Raised voice Raised hand Shaking finger Tone of voice, yelling, threats Chaos in class	Increased or continued frustration More yelling Chaos Sense of fear	Inappropriate physical restraint Grabbing Shaking Screaming
<i>Regulating Brain Region</i>	NEOCORTEX Cortex	CORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic
<i>Cognition</i>	ABSTRACT	CONCRETE	EMOTIONAL	REACTIVE	REFLEXIVE
STATE	CALM	ALERT	ALARM	FEAR	TERROR

Sequence of Engagement



Bonding behaviors decrease when caregiver is overwhelmed or distressed

With increasing threat and distress, an individual's capacity to give to others is diminished

– B.D. Perry



A newborn baby's world in one month.....

- Feeding 300 times....slowly reduced to 180 times
- Diaper Changing 140 or more
- Changing clothes 90 times
- Face to face interaction or gaze 120 times
- Toy play 180 times
- Social Games 90 times
- Cuddling 150 times
- Wake up and soothed 150 times
- Cries and soothed 140 times

We are neglecting our greatest biological gifts

- Relationships...the modern world is relationally disrespectful.
- The brain's malleability in early childhood

The relational landscape is changing.....

- Children have fewer emotional and social and cognitive interactions with fewer people.
- The impact of the “modern” life on the developing child is yet to be understood.
- Our brains have not evolved as fast as technology
- Fragmentation of experiences...less face to face interactions, more screen time.

Modern world vs. Hunter gather society

- Today's typical child is getting $1/20^{\text{th}}$ of the relational interactions that a child growing up in a hunter gather clan. This is the average child, many are getting even less than that. This means that their neural networks are getting $1/20^{\text{th}}$ the repetitions that it should for them to reach their genetic potential.
- Remember the brain develops in a use dependent way, so this means that development is not happening at the rate it should. This leads to relationally immature adults.

Why does this matter?

- Both the stress response system and the reward system in your brain are shaped by relationships in early childhood-both in healthy and unhealthy ways.
- Relationships have a key role in global health, creativity, and productivity of a group.

The best time to influence the character of a child is 100 years before they are born.

W.R. Inge



Adverse Childhood Experiences (ACEs)

- ACE Study Background/History
- Why is this important?
- First point in breaking the cycle of ACEs.

ACE Study and why it is relevant

Adverse Childhood Experiences Study:

Adverse childhood experiences are the most basic cause of health risk behaviors, morbidity, disability, mortality, and healthcare costs.

More than six adverse experiences is correlated with:

1. The development of serious health, behavioral, psychiatric and potentially life-threatening illnesses.
2. A life span shorter by an average of 20 years (60.0 years versus 79.1 years)

www.cdc.gov/NCCDPHP/ACE

ACE Categories Considered in Study

Abuse

1. Child physical abuse
2. Child sexual abuse
3. Child emotional abuse

Neglect

4. Physical Neglect
5. Emotional Neglect

Indicators of Family Dysfunction

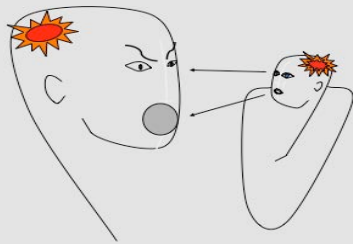
6. Mentally ill, depressed or suicidal person in the home
7. Drug addicted or alcoholic family member
8. Parental discord – indicated by divorce, separation
9. Witnessing domestic violence against the mother
10. Incarceration of any family member

Understanding a person's adverse
childhood experience
takes nothing away from
understanding her resilience.

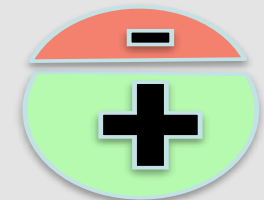
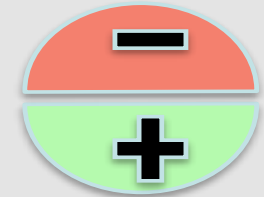
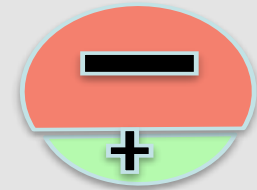
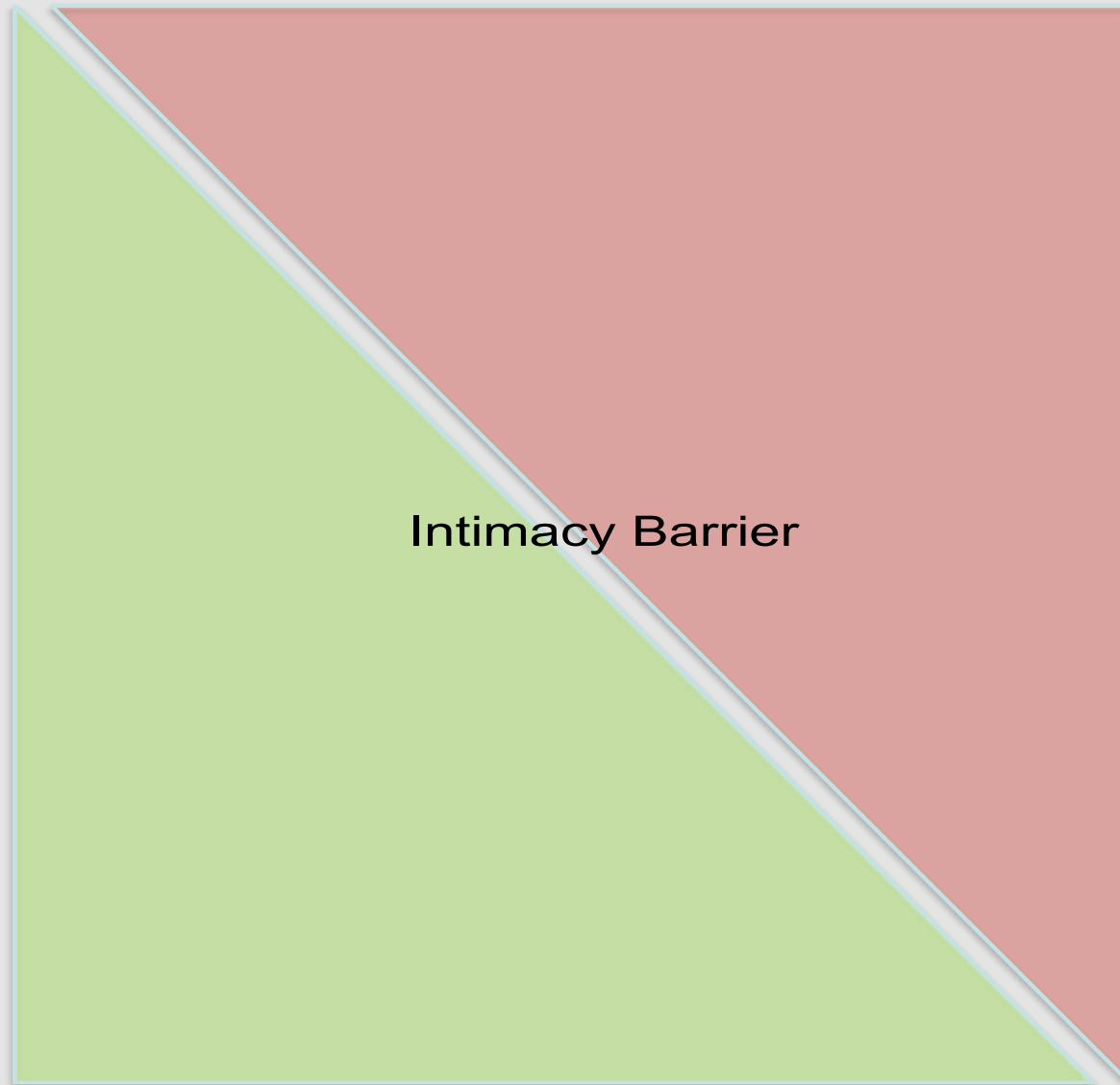
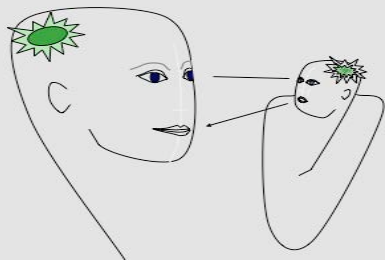
It puts into perspective how spectacularly resilient she
may be, the strengths she is building on for the next
phase of her life, and opens the space to talk about
the life she wants for her self and her family.

Impact of prolonged trauma

- **Being in a state of fear for prolonged periods of time may present as:**
 - Impulsive
 - Hyper vigilant
 - Hyperactive
 - Withdrawn
 - Depressed
 - Anxious
 - Regressive behavior
 - Sleep difficulties
 - Acquire new developmental tasks at a slower rate
- **Often meet criteria for:**
 - ADHD, Anxiety Disorder NOS, Major Depressive Disorder, Conduct Disorder/Oppositional Defiant Disorder, Attachment Disorders



History of Relational Interactions



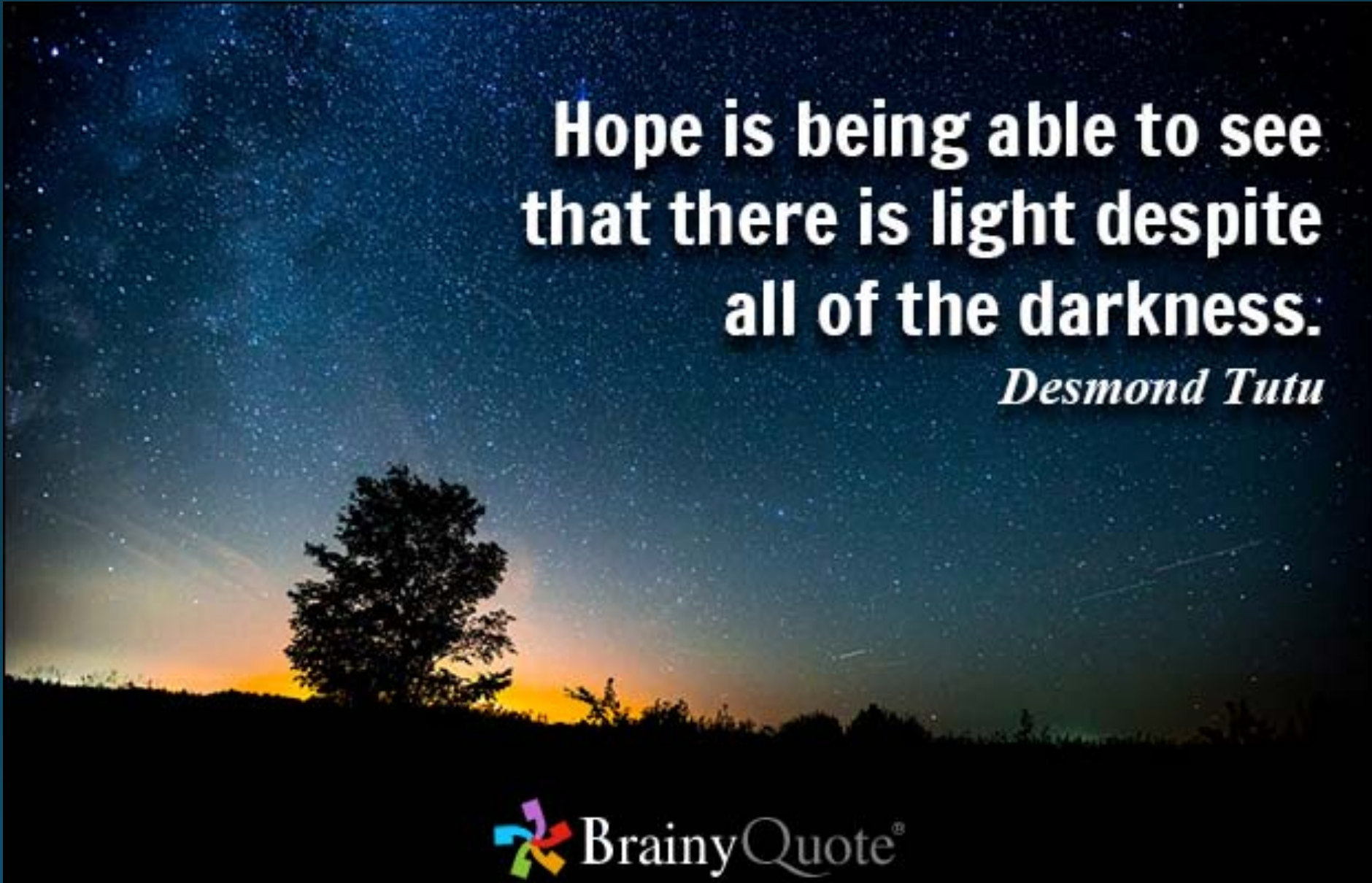
Casual - Routine - Personal - Intimate

Current Therapeutic and parenting culture

- ❖ Strongly emphasizes behaviorism and assumes human beings can universally learn via rewards and consequences.
- ❖ If one rewards good behavior, good behavior will ensue and continue.
- ❖ If one “consequences” poor behavior, the poor behavior will stop.
- ❖ If the modification plan fails, then one assumes the reward was not good enough or the consequence not severe enough.

Current therapeutic and caregiving culture

- ❖ The underlying principle is that all behavior is a choice, and is intentional.
- ❖ Behavioral approaches foster the idea that caregivers can address every problematic behavior effectively.
- ❖ This assumes that the child's early trauma does not impede their ability to choose good behavior.



**Hope is being able to see
that there is light despite
all of the darkness.**

Desmond Tutu